भारतीय मानक
Indian Standard

IS 3683 : 2022

वस्त्रादि मशीनरी एवं सहायकांग — ताना गति अवरोधकों के लिए ड्रॉप तारें — विशिष्टि

(तीसरा पुनरीक्षण)

Textile Machinery and Accessories — Drop Wires for Warp Stop Motions — Specification

(Third Revision)

ICS 59.120.30

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April 2022   **Price Group 5**

Textile Machinery and Accessories Sectional Committee, TXD 14

NATIONAL FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Textile Machinery and Accessories Sectional Committee had been approved by the Textiles Division Council.

This standard was originally published in 1966 and subsequently revised in 1973 and 1987. The third revision has been made in the light of experience gained since its publication and to incorporate the following major changes:

a) Title of the standard has been modified;
b) Material requirement has been modified;
c) Additional dimensions of tube have been specified;
d) Tolerance for requirement of mass has been specified;
e) Marking, packing and sampling clauses have been modified; and
f) References to Indian standards have been updated.

In formulation of this standard, technical assistance has been derived from ISO 441 : 1997 'Textile machinery and accessories — Drop wires for warp stop motions for weaving machines without automatic drawing-in' issued by the International Organization for Standardization (ISO).

The composition of the Committee, responsible for the formulation of this standard is given at Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TEXTILE MACHINERY AND ACCESSORIES — DROP WIRES FOR WARP STOP MOTIONS — SPECIFICATION

(Third Revision)

1 SCOPE

1.1 This standard prescribes the requirements for drop wires of the following types for use in weaving of cotton, silk, wool and man-made/synthetic fibre fabrics:

- a) Type M for mechanical warp stop motions:
  - 1) Closed-end drop wires, type MG (*see* Fig. 1); and
  - 2) Opened-end drop wires, type MO (*see* Fig. 2).
- b) Type E for electrical warp stop motions:
  - 1) Closed-end drop wires, type EG (*see* Fig. 3); and
  - 2) Opened-end drop wires, type EO (*see* Fig. 4).

1.2 This standard is not applicable to drop wires for automatic drawing in process.

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 MANUFACTURE

3.1 Material — The drop wires shall be made from cold-rolled hardened and tempered steel strips with composition and physical properties of grade C 70 conforming to IS 2507. The camber of the steel strip shall not be more than 1 mm per metre.

3.2 Plating — The drop wires shall be plated with zinc or nickel and chromium, and the plating shall conform to service condition as indicated below:

Metal	*Service Condition*	*Conforming to*
Zinc	3	IS 1573
Nickel/Chromium	3	IS 1068

3.3 Freedom from Defects — The drop wires shall be smooth and free from cracks, rough or sharp edges and other flaws which would cause breakage of yarn. The drop wires should particularly have a high degree of polish in the yarn holes.

3.4 If prescribed by the buyer, open-end drop wires shall be given different angles at the top for different thicknesses and in case of 0.3 mm thick closed-end drop wires, the length of upper slot be reduced by 2 mm so that length 5 mm shown in figure becomes 7 mm for easy identification in the mills.

4 SPECIFIC REQUIREMENTS

4.1 Dimensions

4.1.1 The dimensions and mass of drop wires for mechanical warp stop motions shall be as given in Table 1 read with Fig. 1 and Fig. 2.

4.1.2 The dimensions and mass of drop wires for electrical warp stop motions shall be as given in Table 2 read with Fig. 3 and Fig. 4.

4.2 Yarn Eye

The drop wires may be provided with U-shaped eye, Type U or round eye, Type R as agreed to between the buyer and the seller.

4.2.1 In case of round eye, the upper edge should be at the same level as the upper edge of the U-shaped eye and the diameter shall be equal to the width of U-shaped eye.

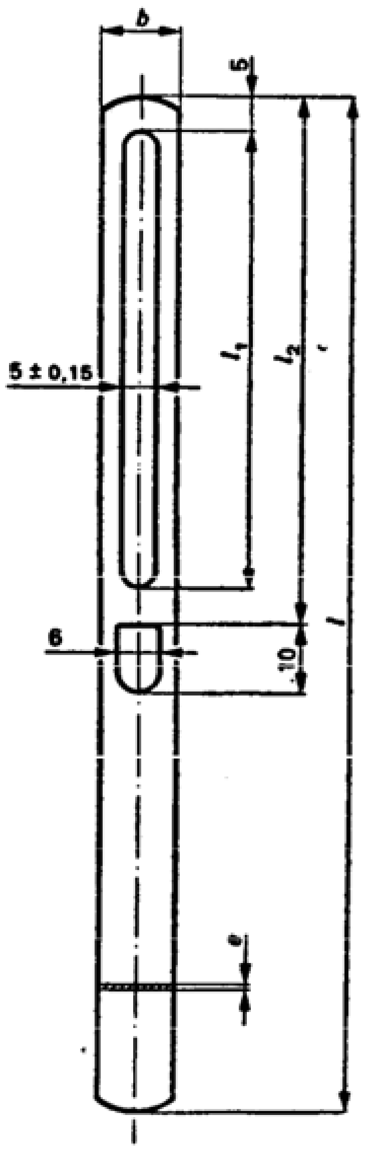
5 DESIGNATIONS

A drop wire shall be designated by its type (M for mechanical warp stop motion or E for electrical warp stop motion), shape of end (G for closed-end or O for open-end) type of eye (R for round eye or U for U shaped eye) and length, width and thickness in mm.

Example

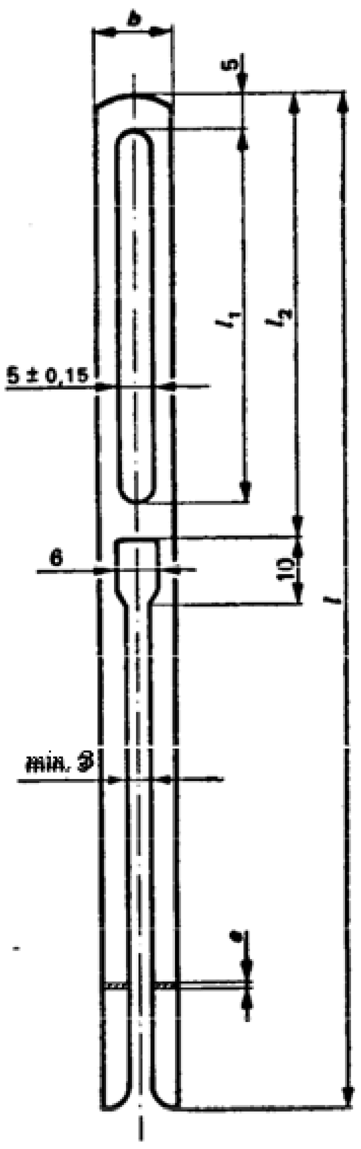
A closed-end drop wire for mechanical warp stop motion having round eye and length of 145 mm, width of 11 mm and thickness of 0.3 mm shall be designated as under:

Drop wire MGR 145 × 11 × 0.3



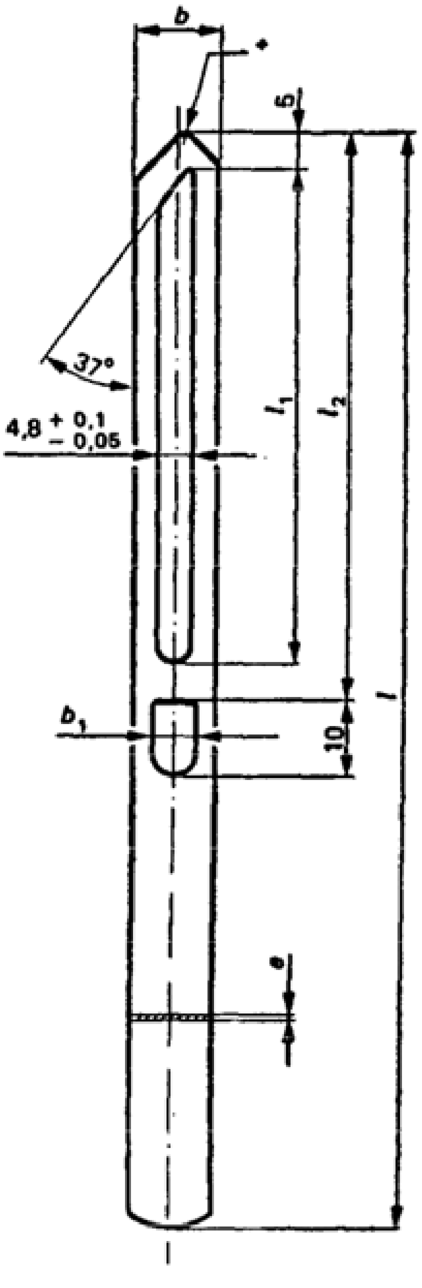
All dimensions in millimetres.

FIG. 1 CLOSED-END TYPE MG WITH U-SHAPED EYE, TYPE U



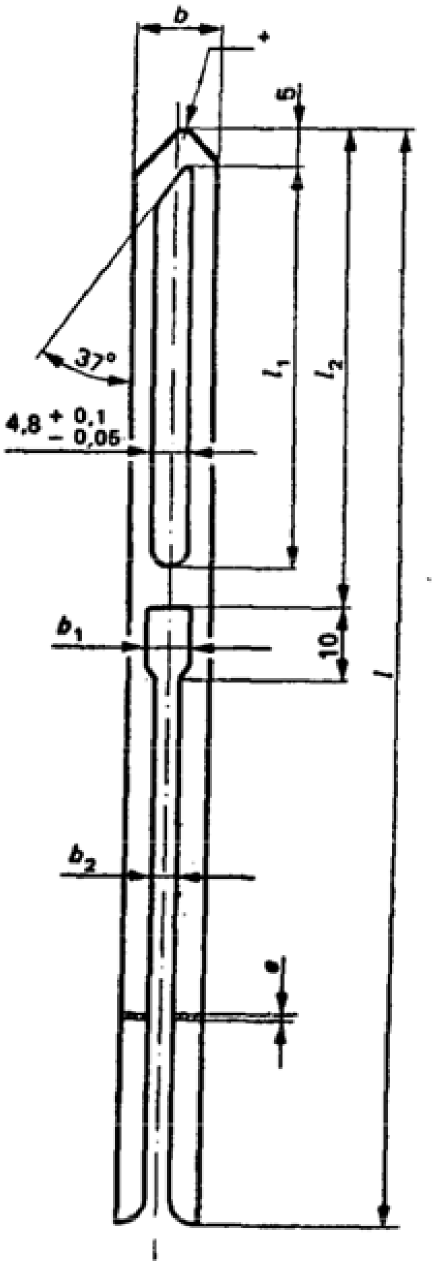
All dimensions in millimetres.

FIG. 2 OPEN-END TYPE MO WITH U-SHAPED EYE, TYPE U



All dimensions in millimetres.

FIG. 3 CLOSED-END TYPE EG WITH U-SHAPED EYE, TYPE U



All dimensions in millimetres.

FIG. 4 OPEN-END TYPE EO WITH U-SHAPED EYE, TYPE U

Table 1 Dimensions and Mass of Drop Wires for Mechanical Warp Stop Motions

(*Clause* 4.1.1)

Type	Length	Width	Thickness	Length of Upper Slot	Length of Upper Part	Mass
	l mm	*b* mm	*e* mm	l_1 mm	l_2 mm	g
(1)	(2)	(3)	(4)	(5)	(6)	(7)
MG	120	11	0.2 0.3 0.4	53	63	1.6 2.4 3.2
MO	125		0.2 0.3 0.4			1.4 2.1 2.8
MG	125		0.2 0.3 0.4			1.7 2.5 3.3
MO	135		0.2 0.3 0.4			1.5 2.3 3.0
MG	135		0.2 0.3 0.4			1.8 2.7 3.6
MO	145		0.2 0.3 0.4			1.7 2.5 3.3
MG	145		0.2 0.3 0.4	65	75	1.9 2.9 3.8
MO	155		0.2 0.3 0.4			1.7 2.6 3.4
MO	165		0.2 0.3 0.4			1.9 2.9 3.8
MG	165		0.2 0.3 0.4			2.2 3.3 4.4
MO	180		0.2 0.3 0.4			2.2 3.3 4.4
Tolerance	± 0.3	± 0.1	± 0.02 for thickness of 0.2 and ± 0.025 for thickness of 0.3 and 0.4	± 0.3	± 0.3	± 5 percent

Table 2 Dimensions and Mass of Drop Wires for Electrical Warp Stop Motions

(*Clause* 4.1.2)

All dimensions in millimetres.

Type	Length	Width	Thickness	Length of Upper Slot	Length of Upper Part	Width of Yarn Eye	Lower Slot	Mass
	l mm	*b* mm	*e* mm	l_1 mm	l_2 mm	b_1* mm	b_2 *Min* mm	g
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EG	125	11	0.2 0.3 0.4	53	63	6	–	1.7 2.5 3.3
EO	135	11	0.2 0.3 0.4			6	3	1.5 2.2 2.9
EO	145	7	0.2			4	2.5	0.9
		8	0.2			5		1.1
		11	0.2			6	3	1.6
			0.3					2.4
			0.4					3.2
EG	145	8	0.2	65	75	5	–	1.2
		11	0.2			6	–	1.9
			0.3				–	2.8
			0.4				–	3.7
EO	155	11	0.2 0.3 0.4			6	3	1.7 2.5 3.4
EO	165	8	0.2			5	2.5	1.2
		11	0.2			6	3	1.8
			0.3					2.7
			0.4					3.6
EG	165	11	0.2			6	3	2.2
			0.3					3.3
			0.4					4.4
			0.5					5.5
EO	180	11	0.2			6	3	2.2
			0.3					3.3
			0.4					4.4
			0.5					5.5
Tolerance	± 0.3	± 0.1	± 0.02 for thickness of 0.2 and ± 0.025 for thickness of 0.3 and 0.4	± 0.3	± 0.3	± 0.1		± 5 percent

*Or diameter of round eye, Type R. The upper edge of the round eye, Type R should be at the same level as the upper edge of the U-shaped eye, Type U.

6 PACKING

A convenient number of drop wires of the same designation with long slots in one direction shall be wrapped in waxed paper and packed in cardboard box. Depending on the order to be executed, such cardboard boxes may be packed in wooden case(s). Details of the packing shall be as agreed to between the buyer and the seller. Packaging of the product shall be such as to maintain the integrity of the product throughout its shelf life.

7 MARKING

7.1 Each box and the wooden case shall be marked with the following information:

a) Designation of the drop wires (*see* **5.1**);
b) Manufacturer's name, initials or trade-mark, if any;
c) Batch no./Lot no.;
d) Month and year of manufacture;
e) Number of boxes in the case;
f) Country of origin; and
g) Any other information required by the law in force and/or by the buyer.

7.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

8 SAMPLING AND CRITERIA OF CONFORMITY

8.1 All the drop wires of the same material and designation delivered to a buyer against a despatch note shall constitute a lot.

8.2 The conformity of the lot to the requirements of this standard shall be determined on the basis of the tests carried out on the samples selected from it.

8.3 Unless otherwise agreed to between the buyer and the seller, the number of boxes of drop wires to be selected at random shall be in accordance with column 2 and 3 of Table 3.

NOTE — For examining dimensions and freedom from defects, ten drop wires shall be drawn at random from each of the boxes given in column 3 of Table 3.

8.4 The number of tests and criteria for conformity for each of the characteristics shall be as under:

Characteristic	Number of Tests	Criteria for Conformity
Dimensions and freedom from defects	As in column 4 of Table 3	Non-conforming drop wires not to exceed corresponding number given in column 5 of Table 3
Thickness of plating	As in column 6 of Table 3	Each observed value satisfies the specified requirement
Mass	Two sets of 100 drop wires from each of the boxes given in co1umn 3 of Table 3	Each observed value satisfies the specified requirement

Table 3 Number of Drop Wires to be selected from a Lot and Permissible Number of Non-Conforming Drop Wires

(*Clauses* 8.3 *and* 8.4)

Sl No. (1)	Number of Boxes in the Lot (2)	Number of Boxes to be Selected (3)	Number of Drop Wire to Be Inspected for Dimensions and Freedom from Defects (4)	Permissible Number of Non- Conforming Drop Wires (5)	Number of Drop Wires to be Inspected for Thickness of Plating (6)
i)	Up to 8	2	20	1	5
ii)	9 to 15	3	30	2	5
iii)	16 to 25	5	50	3	5
iv)	26 to 50	8	80	5	10
v)	51 and above	13	130	7	10

ANNEX A

(*Clause* 2)

IS No.	*Title*
2507 : 1975	Specification of cold-rolled steel strips for spring (*first revision*)
1573 : 1986	Specification for electroplated coatings of zinc on iron and steel (*second revision*)
1068 : 1993	Electroplated coating of nickel plus chromium and copper plus nickel plus chromium — Specification (*third revision*)

ANNEX B

(*Foreword*)

COMMITTEE COMPOSITION

Textiles Machinery and Accessories, TXD 14

Organization	*Representative(s)*
Central Manufacturing Technology Institute, Bengaluru	Dr Nagahanumaiah (***Chairman***)
Amritlakshmi Machine Works, Mumbai	Shri N. K. Brahmachari Shri N. K. Raut (*Alternate*)
Bhowmick Calculator, Kolkata	Shri Goutam Bhowmick Shri Vivek Bhowmick (*Alternate*)
Bombay Textile Research Association Mumbai	Shri V. A. Gawde Shri R. A. Shaikh (*Alternate*)
Central Institute for Research in Cotton Technology, Mumbai	Dr V. G. Arude Dr T. Senthil Kumar (*Alternate*)
Central Manufacturing Technology Institute, Bengaluru	Shri B. R. Mohanraj Shri K. Saravanan (*Alternate*)
Confederation of Indian Textile Industry, New Delhi	Shri Ajay Kumar
Department of Heavy Industries Government of India, New Delhi	Shri Sushil Lakra
Harish Textile Engineers Pvt Ltd, Mumbai	Shri Itendra H. Shah
HLL Lifecare Limited, Noida	Shri Akhil G. S. Shri Ratnakar Gupta (*Alternate*)
Indian Textile Accessories and Machinery Manufacturers' Association, Mumbai	Shri N. D. Mhatre Shri Chandresh Shah (*Alternate*)
India ITME Society, Mumbai	Shri Prashant Mangukia Ms Seema Srivastava (*Alternate*)
Innovative Electrosoft (I) Pvt Ltd, Pune	Mr Firoz B. Shaikh Ms Prajakta A. Dangat (*Alternate*)
Inspiron Engineering Pvt Ltd, Ahmedabad	Shri Sanjay Kowarkar Shri Pratyush B. Chaukase (*Alternate*)
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Laksmi Machine Works Ltd, Coimbatore	Shri V. Lakshmi Varadharajan
Laxmi Shuttleless Looms Pvt Ltd, Ahmedabad	Shri Ketan Sanghvi
Man-made Textile Research Association, Surat	Dr S. K. Basu Dr S. Matiz (*Alternate*)
National Safety Council, Mumbai	Shri Lalit R. Gabhane. Shri R. R. Deoghare (*Alternate*)
Office of the Textile Commissioner, Mumbai	Shri C. R. Kalesan Shri Jagram Meena (*Alternate*)
Peass Industrial Engineers Ltd, Mumbai	Shri R. G. Yadav Shri Anthoni L. Francis (*Alternate*)
Textile Machinery Manufacturing Association, Mumbai	Shri M. Shankar Shri Prashant Mangukia (*Alternate*)

Organization	*Representative(s)*
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The Synthetic and Art Silk Mills Research Association, Mumbai	Dr Manisha Mathu Shri Sanjay Saini (*Alternate*)
The Textile Association (India), Mumbai	Shri J. B. Soma Shri Ashok Juneja (*Alternate*)
Truetzschler India Private Limited, Ahmedabad	Shri Pravin Kandge Shri Shiladitya Joshi (*Alternate*)
Unicef India, New Delhi	Dr Pratibha Singh Mr Yusuf Kabir (*Alternate*)
Veermata Jijabai Technological Institute, Mumbai	Dr Suranjana Gangopadhyay Dr S. P. Barkar (*Alternate*)
BIS Directorate General	Shri J. K. Gupta, Scientist 'E' and Head (TXD) [Representing Director General (*Ex-officio*)]

Member Secretary

Shri Ashwani Kumar
Scientist 'B' (TXD), BIS

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This Indian Standard has been developed from Doc No.: TXD 14 (17891).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Published by BIS, New Delhi